OSWER Innovations Pilot

Brockton Brightfields: Innovative Green Power Marketing Pilot

In December 2001, the Office of Solid Waste and Emergency Response (OSWER) initiated a series of innovative pilots to test new ideas and strategies for environmental and public health protection to make OSWER programs more efficient, effective, and user-friendly. A small amount of money is set aside to fund creative proposals testing approaches to waste minimization, energy recovery, recycling, and land revitalization that may be replicated across various sectors, industries, communities, and regions. We hope these pilots will pave the way for programmatic and policy recommendations by demonstrating the environmental and economic benefits of creative, innovative approaches to the difficult environmental challenges we face today.

BACKGROUND

The term "green power" is used to define power generated from renewable energy sources, such as wind and solar power, geothermal, hydropower, and various forms of biomass. Potential green power developers face challenges securing project financing without long-term contracts for the products of their efforts–energy and renewable energy certificates (RECs). RECs represent the bundle of attributes, except the actual electrical energy, associated with the generation of electricity from a renewable energy facility.

The City of Brockton, Massachusetts, and its partners (including Brockton 21st Century Corporation, XENERGY ,Spire Corporation, and Bay State Gas) recently completed a detailed study and business plan that recommends the development of a 1 megawatt solar Brightfield on an otherwise unusable brownfield. (The term "brightfields" refers to the conversion of contaminated sites into usable land by bringing pollution-free solar energy and high-tech solar manufacturing jobs to these sites, including placing photovoltaic arrays and solar manufacturing plants on brownfields sites.) The local community and neighborhood surrounding the brownfield actively support this sustainable revitalization project. A number of green power aggregators and marketers have expressed interest in purchasing RECs from the solar Brightfield at a significant premium above and beyond what could be offered by the local market for compliance with the state's renewable energy targets. However, as is typical with many retail electricity suppliers, the marketers generally indicate a preference for short-term contracts.

PILOT APPROACH

U.S. EPA Region 1, in partnership with the City of Brockton, MA, Brockton 21st Centry Corporation, and XENERGY, will develop an innovative marketing concept to secure long-term contracts for the RECs generated by the Brockton Brightfield. Crucial next steps include marketing and securing long-term contracts (15 to 20 years) for the sale of electricity and RECs from the project, and using these contracts to support project finance. The city already has agreed to help facilitate the purchase of the electricity, therefore, initial efforts will be focused on selling the RECs into the region's developing green power market.

The approach for marketing the RECs is similar to selling stock in a company with the promise that dividends will increase over time. A customer would enter into a contract to purchase a fixed percentage of the project's REC output based on an agreed upon performance standard. The Brightfield would seek contracts that correspond with the forecasted length of time it would take to accumulate enough cash to support a capacity expansion. After a capacity

expansion, customers would still be entitled to the same fixed percentage of RECs produced by the now larger project. Thus, the customer would be paying approximately the same price for a greater number of green power certificates - reducing the $/MWh price to customers, while continuing to support ongoing project development.

Pilot activities will focus on refining the innovative marketing concept and marketing and negotiating this concept with local green power marketers. U.S. EPA funds will be used to prepare a case study and model that can be used by other renewable energy projects throughout the country.

INNOVATION

Monetizing the environmental benefits of various projects has been a long-standing environmental challenge. The innovative financing and growth concepts proposed by this pilot seek to provide a carrot to encourage the market to support long-term contracts for RECs, thereby monetizing them for purposes of supporting financing and revenue forecasts. The specific innovative elements include the use of excess cash flows to fund capacity expansions and provide rights to the associated increases in REC output to customers that enter into long-term contracts. In addition, Brightfields are themselves an innovative use of blighted brownfields that might not otherwise be redeveloped because of their limited reuse potential.

BENEFITS

The project will develop a clean energy source on an abandoned industrial property with few other development options, and no development options as sustainably desirable as the Brightfield (no emissions, noise or traffic). Further, beautification efforts on the site perimeter will transform a blighted property into a community asset. This model will enable Brockton to expand its project by reinvesting in generation assets. There are even greater benefits to the state and EPA in that Brockton's experience will help to grow the market for renewable energy while creating a replicable model for other communities. Growth of the green power market has clear environmental and public health benefits for all stakeholders.

CONTACTS

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For additional information, visit the EPA OSWER Innovations web site at: www.epa.gov/oswer/IWG.htm.

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